

**WHAT IS CLAIMED IS:**

1. A package for an addressable array of multiple features carried on a first side of a substrate, comprising a housing which receives the substrate such that the housing and received substrate define a chamber into which the multiple features face, and which chamber is accessible through a first port, the housing including a first set of multiple fluid distribution channels each disposed between the first port and the multiple features of the received substrate so as to direct fluid flow between multiple different regions across the first side of the received substrate to or from the first port.
2. A package according to claim 1, additionally comprising the received substrate.
3. A package according to claim 2 wherein the features comprise different biopolymer sequences.
4. A package according to claim 3 wherein the features comprise different DNA sequences.
5. A package according to claim 1, wherein at least some of the fluid distribution channels are valved such that they can prevent or permit fluid flow out of the chamber to the first port.
6. A package according to claim 1 wherein at least some of the fluid distribution channels are capillary sized so that capillary action therein will retain fluid in the chamber in the absence of a minimal pressure differential applied across those fluid distribution channels.
7. A package according to claim 5, additionally comprising a bubble formation device in at least some of the fluid distribution channels of the first set, so that when activated a bubble is formed in the corresponding channel to retain fluid in the chamber.
8. A package according to claim 7 wherein the bubble formation device comprises a bubble nucleating resistor.

9. A package according to claim 1 wherein fluid flow width increases between the first port to the first set of fluid distribution channels.
10. A package according to claim 1 wherein the first port includes a closure member normally closing the first port.
11. A package according to claim 10 wherein the closure member comprises a resilient self-sealing member.
12. A package for an addressable array of multiple features carried on a first side of a substrate, comprising a housing which receives the substrate such that the housing and received substrate define a chamber into which the multiple features face, the housing including:
- a first port through which the chamber is accessible;
  - a first set of multiple fluid distribution channels each disposed between the first port and the multiple features of the received substrate so as to direct fluid flow between multiple different regions across the first side of the received substrate to or from the first port; and
  - a second port on a side of the multiple fluid distribution channels opposite that of the first port.
13. A package according to claim 12, additionally comprising the received substrate.
14. A package according to claim 13 wherein the features comprise different biopolymer sequences.
15. A package according to claim 14 wherein the features comprise different DNA sequences.
16. A package according to claim 12, wherein at least some of the fluid distribution channels are valved such that they can prevent or permit fluid flow out of the chamber to the first port.

17. A package according to claim 12 wherein the fluid distribution channels are capillary sized so that capillary action therein will retain fluid in the chamber in the absence of a minimal pressure differential applied across those fluid distribution channels.
18. A package according to claim 12, additionally comprising a bubble formation device in at least some of the fluid distribution channels of the first set, so that when activated a bubble is formed in the corresponding channel to retain fluid in the chamber.
19. A package according to claim 12 wherein fluid flow width increases between the first port to the first set of fluid distribution channels.
20. A package according to claim 12 wherein the first and second ports each includes a resilient self-sealing closure member normally closing the respective ports.
21. A package for an addressable array of multiple features carried on a first side of a substrate, comprising a housing which receives the substrate such that the housing and received substrate define a chamber into which the multiple features face, the housing including:
- a first port through which the chamber is accessible,
  - a first set of multiple fluid distribution channels each disposed between the first port and the multiple features of the received substrate so as to direct fluid flow between multiple different regions across the first side of the received substrate to or from the first port;
  - a second port through which the chamber is accessible;
  - a second set of multiple fluid distribution channels each disposed between the second port and the multiple features of the received substrate so as to direct fluid flow between multiple different regions across the first side of the received substrate to or from the second port; and
  - a third port which accesses the chamber at a position between the first and second sets of fluid distribution channels.
22. A package according to claim 21, additionally comprising the received substrate.

23. A package according to claim 22 wherein the features comprise different biopolymer sequences.
24. A package according to claim 23 wherein the features comprise different DNA sequences.
25. A package according to claim 22 wherein the fluid distribution channels of the first and second sets are capillary sized so that capillary action therein will retain fluid in the chamber in the absence of a minimal pressure differential applied across those fluid distribution channels.
26. A package according to claim 22, additionally comprising a bubble formation device in at least some of the fluid distribution channels of at least one of the first and second sets, so that when activated a bubble is formed in the corresponding channel to retain fluid in the chamber.
27. A package according to claim 22 wherein fluid flow width increases between the first port to the first set of fluid distribution channels and between the second port to the second set of fluid distribution channels.
28. A package according to claim 22 wherein the first port and second ports include respective resilient self-sealing members normally closing the respective ports.
29. A method of exposing an addressable array of multiple features carried on a first side of a substrate, to a fluid, using a housing and the substrate together so as to define a chamber into which the multiple features face, and which chamber is accessible through a first port, the housing including a first set of multiple fluid distribution channels each disposed between the first port and the multiple features of the received substrate, the method comprising:  
either adding or removing the fluid through the first port such that fluid flow is directed by the multiple fluid distribution channels between multiple different regions across the first side of the received substrate to or from the first port.

30. A method according to claim 29 wherein the features comprise different biopolymer sequences.
31. A method according to claim 29 wherein the fluid distribution channels are capillary sized so that capillary action therein will retain fluid in the chamber in the absence of a minimal pressure differential applied across those fluid distribution channels.
32. A method according to claim 29 wherein the package additionally has a bubble formation device in at least some of the fluid distribution channels of the first set, the method additionally comprising activating the bubble formation device in at least one of the fluid distribution channels so as to form a bubble is formed in the corresponding channel to retain fluid in the chamber.
33. A method of exposing an addressable array of multiple features carried on a first side of a substrate, using a housing and the substrate together to define a package which includes:
- a chamber into which the multiple features face;
  - a first port through which the chamber is accessible,
  - a first set of multiple fluid distribution channels each disposed between the first port and the multiple features of the received substrate;
  - a second port through which the chamber is accessible; and
  - a third port which accesses the chamber at a position between the first set of fluid distribution channels and the second port;
- the method comprising:
- (a) adding a first fluid to be tested by the array to the chamber through the third port;
  - (b) adding a wash fluid through the first port such that the wash fluid is directed by the first set of fluid distribution channels from the first port toward multiple different regions across the first side of the substrate; and
  - (c) exhausting fluid through the second port.
34. A method according to claim 33 wherein:

the package includes a second set of multiple fluid distribution channels each disposed between the second port and the multiple features of the substrate, at least some of the fluid distribution channels of one of the sets being capillary sized so that capillary action therein will retain fluid in the chamber in the absence of a minimal pressure differential applied across those fluid distribution channels;

the method additionally comprising:

following addition of the first fluid to the chamber, providing less than the minimal pressure differential across the capillary sized fluid distribution channels so as to retain the first fluid in the chamber; and

during addition of the wash fluid providing at least the minimal pressure differential across the capillary sized fluid distribution channels so as to exhaust fluid from the chamber through the capillary sized channels and the outlet port.

35. A method according to claim 33 wherein at least some of the first set of channels are valved, the method additionally comprising selectively activating the valves so as to control wash fluid entry through the first set of channels.

36. A method according to claim 35 wherein all of the fluid distribution channels of the first or second set are capillary sized.

37. A method according to claim 36 wherein all of the fluid distribution channels of the first and second sets are capillary sized.

38. A method according to claim 35 wherein the package includes a second set of multiple fluid distribution channels each disposed between the second port and the multiple features of the substrate, at least some of the fluid distribution channels of one of the sets including a bubble formation device so that when activated a bubble is formed in the corresponding channel to retain fluid in the chamber;

the method additionally comprising:

following addition of the first fluid to the chamber, activating the bubble formation devices so that the first fluid is retained in the chamber.

39. A method according to claim 38 wherein the bubble formation devices comprise bubble nucleating resistors.
40. A method according to claim 38 wherein all of the fluid distribution channels of one of the sets include the bubble formation device..
41. A method according to claim 38 wherein all of the fluid distribution channels of the first and second sets include the bubble formation device.
42. A method according to claim 29 wherein the fluid is a sample to be tested by the array, the method additionally comprising interrogating the array following exposure.
43. A method according to claim 29 wherein the fluid is a sample to be tested by the array and the array is exposed to the sample at a first location, the method additionally comprising interrogating the array following exposure to obtain a result of the exposure, and communicating the result or a conclusion based on the result to a location remote from the first location.
44. A method according to claim 43 wherein the sample was obtained from a location remote from the first location.